address, toggling the next most significant bit every fourth address, etc. To further increase memory access speeds, a 2-bit prefetch mode of operation was developed. In the 2-bit prefetch mode of operation, the LSB of an address is ignored, and corresponding columns in respective arrays are thus simultaneously accessed using the address designated by all but the LSB of the column address. The column that is accessed in each array is thus designated by the NLS and higher bits and, as a practical matter, should be the same for both arrays so that corresponding columns in both arrays are simultaneously accessed.

Please replace the paragraph beginning at page 3, line 1, with the following rewritten paragraph:

The sequence of column addresses that should be generated starting at an initial, externally applied column address of "$CA_N \ldots CA_2$, CA_1, CA_0" (where "CA_0" is the LSB, "CA_1" is the NLSB, and "$CA_N \ldots CA_2$" are higher order bits) are shown below (ignoring the bits that are higher order than CA_3). The address sequence for an interleave mode with a starting column address of "0 1 1 0" is as follows:

"0 1 1 0" (starting column address)
"0 1 1 1"
"0 1 0 0"
"0 1 0 1"
"0 0 1 0"
"0 0 1 1"
"0 0 0 0"
"0 0 0 1"

Please replace the paragraph beginning at page 3, line 14, with the following rewritten paragraph:

The address sequence for an interleave mode with a starting column address of "0 1 0 1" is as follows:

"0 1 0 1" (starting column address)
"0 1 0 0"
"0 1 1 1"
"0 1 1 0"
"0 0 0 1"
"0 0 0 0"
"0 0 1 1"
"0 0 1 0"

Please replace the paragraph beginning at page 3, line 24, with the following rewritten paragraph:

The address sequence for a serial mode with a starting column address of "0 1 1 0" is as follows:

"0 1 1 0" (starting column address)
"0 1 1 1"
"0 0 0 0"
"0 0 0 1"
"0 0 1 0"
"0 0 1 1"
"0 1 0 0"
"0 1 0 1"

Please replace the paragraph beginning at page 4, line 4, with the following rewritten paragraph:

In all cases, the LSB in all of the above examples is ignored by the memory devices, as previously explained. In each of the above examples, the NLS and higher bits select the same column in each pair of addresses, and the LSB is effectively "0" for the even array and "1" for the odd array. For example, the first pair of column addresses in the interleave mode with a starting column address of "0 1 1 0" selects a column in both arrays having a NLSB (*i.e.*, an effective LSB) of "1", and the second pair of column addresses selects a column in both arrays having a NLSB (*i.e.*, an effective LSB) of "0."

Please replace the paragraph beginning at page 4, line 12, with the following rewritten paragraph:.

In all of the above cases, the sequence of column addresses can be generated by an incrementing a burst counter that generates only the NLSB and all bits more significant than the NLSB since the LSB is ignored by the counter . Note, however, a problem that develops in the serial mode where the starting column address is "0 1 0 1":

"0 1 0 1" (starting column address)
"0 1 1 0"
"0 1 1 1"
"1 0 0 0"
"1 0 0 1"
"1 0 1 0"
"1 0 1 1"
"1 1 0 0"

Please replace the paragraph beginning at page 5, line 16, with the following rewritten paragraph:

The above address sequence cannot be generated by a serial increment of a burst counter since the addresses in the above sequence (again, ignoring the LSB) do not increment. Thus, an interleave sequence for certain starting addresses cannot be generated in the 2-bit prefetch mode by simply incrementing a burst counter.

Please replace the paragraph beginning at page 5, line 20, with the following rewritten paragraph:

Conventional burst mode 2-bit prefetch memory devices capable of operating in either a serial mode or an interleave mode generally require two different burst mode counters, one of which is used in the serial mode and the other of which is used in the interleave mode. The need for separate burst accessing circuitry for each of these two burst modes significantly increases the cost of memory devices operating in these two modes.

Please replace the paragraph beginning at page 7, line 14, with the following rewritten paragraph:

After the row address has been applied to the address register 12 and stored in one of the row address latches 26, a column address is applied to the address register 12. The address register 12 couples the column address to a column address latch 40. Depending on the operating mode of the SDRAM 10, the column address is used for either of two purposes. First, in a normal operating mode, the column address is coupled through a burst counter 42 to a column address buffer 44 to select a column of memory cells in one or both of the memory arrays 20, 22. Second, in a burst operating mode, the column address is coupled to the burst counter 42 and used as a starting column address ("SCA"). The burst counter then generates a sequence of column addresses starting at the SCA, and applies the sequence of column addresses

to the column address buffer 44. In either case, the column address buffer 44 applies a column address to a column decoder 48a,b for each array 20, 22. The column decoders 48a,b apply respective decoded column addresses to respective sense amplifiers and associated column circuitry 50, 52 for the respective arrays 20, 22.

Please replace the paragraph beginning at page 9, line 13, with the following rewritten paragraph:

For example, in the serial mode using the above example of a starting column address of "0 1 0 1" the correct sequence is:

"1 1 0 1" (starting column address)

"1 1 0 0"

"1 0 1 1"

"1 0 1 0"

"1 0 0 1"

"1 0 0 0"

"1 1 1 1"

"1 1 1 0"

Again, ignoring the LSB, it can be seen that the above sequence consists of a decrementing count, and that the column address for each pair of addresses is the same for both the even and the odd addresses in each pair.

Please replace the paragraph beginning at page 9, line 26, with the following rewritten paragraph:

In the interleave mode, the correct sequence of column addresses for a starting column address of "1 0 1 1" is as follows:

"1 0 1 1"

"1 0 1 0"